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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,896	07/30/2003	Takaaki Karikomi	040302-0333	6241

22428 7590 12/29/2004

FOLEY AND LARDNER  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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MILLER, PATRICK L

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/629,896

Applicant(s)

KARIKOMI, TAKAAKI

Examiner

Patrick Miller

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40 is/are rejected.
- 7) ☒ Claim(s) 1-39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07302003</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1-40 are objected to because of the following informalities: see bullet(s) below.

Appropriate correction is required.

- Claims 1, 20, and 39 recite, “a current supplied to the electric motor” (ll. 15-16). If this current is the same as that recited on line 9, change “a” to “the.” If not, please distinguish.
- Claims 1, 20, 39, and 40 recite, “a long axis of a current vector” (l. 18). Change to “the long axis of the current vector.”
- Claims 1, 20, 39, and 40 recite, “a short axis thereof” (l. 20). Change “a” to “the.”
- Claims 1, 20, and 39 recite, “a different frequency from that of the drive current” (ll. 21-22). This clause is the same as in lines 9-10. Is the second occurrence needed?
- Claims 2, 4-7, 21, 23-26, and 38 recite “the d-axis.” Please state what ‘d’ stands for. E.g. where the d-axis represents the flux axis.
- Claims 7 and 28 recite, “an angular speed” (ll. 6-7 and l. 5, respectively). It is unclear whether this term is the same as the angular speed recited on lines 4 and 3 of their respective claims. Please clarify.
- In Claims 14 and 33, it is unclear whether the product is meant to be the cross product or regular multiplication. Please clarify.
- For claims 17, 18, 36, and 37, specify what the variables for the axes mean. For example, “where the  $\alpha/\beta$  -axes is the stationary reference frame axis.”

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 40 is rejected under 35 U.S.C. 102(e) as being anticipated by Iijima et al (6,583,593).

- With respect to claim 40, Iijima et al disclose a method for controlling an electric motor having an inverter circuit connected to a direct-current power source to convert a power from the direct-current power source to an alternating current power for driving the electric motor (Fig. 2, inverter and power source), the method comprising: calculating a target value of a feature based on at least the length of a short axis, corresponding to a target torque for the electric motor (Fig. 1, #40 calculates the target value,  $T^*$  (Fig. 3), which is based on  $\omega_m$ , which is calculated using the short axis of  $i\delta$ ); superimposing a superimposed current on a drive current for driving the electric motor thereby detecting an actual value of the feature based on at least one of the length of a short axis, where the superimposed current having a different frequency from that of the drive current (Fig. 1, #70; Fig. 5B; see also cols. 29/30, ll. 55-67/1-28); detecting a phase angle of the electric motor on the basis of the target value and the actual value (Fig. 1, #60; Fig. 5A; see also col. 29, ll. 18-54); and controlling the operation of the inverter circuit on the basis of the phase angle (Fig. 1, #50 controls #30 based on output of #60).

*Allowable Subject Matter*

3. Claims 1-39 would be allowable once the minor informalities are corrected.

- With respect to claims 1, 20, and 39, the Prior Art does not disclose a superimposing unit for superimposing a superimposed current on a drive current for driving the motor, where the superimposed current has a different frequency from a frequency of the drive current; a feature target generating means that calculates a target value of a feature based on at least one of the length of a long axis of either a current or voltage vector locus, respectively, and the length of a short axis, corresponding to the target torque; a separating means for separating the superimposed current from the current supplied to the electric motor; and an actual feature detecting means that detects an actual value of the feature based on at least one length of a long axis of either a current or voltage vector locus of the superimposed current separated by the separating means and the length of a short axis; and a phase angle detecting means that detects a phase angle based on the actual and featured target values.

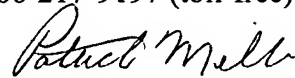
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

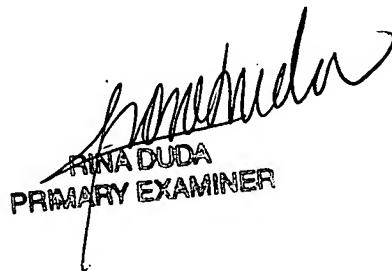
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick Miller  
Examiner  
Art Unit 2837

pm  
December 26, 2004



RINA DUDA  
PRIMARY EXAMINER